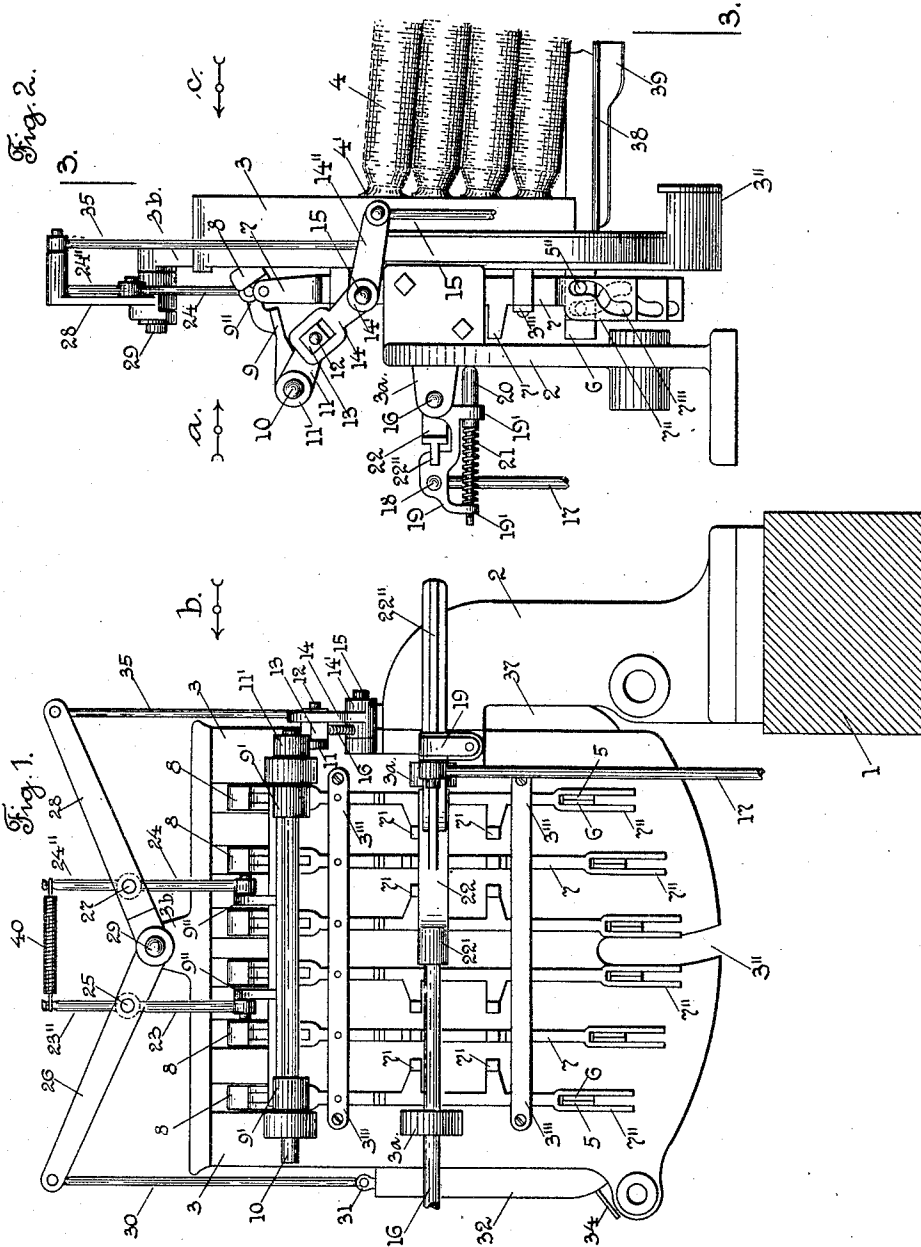


E. H. RYON.
WEFT REPLENISHING LOOM.
APPLICATION FILED DEC. 1, 1910.

1,005,322.

Patented Oct. 10, 1911.

3 SHEETS—SHEET 1.



Witnesses
M. Bredt.
W. D. Casar

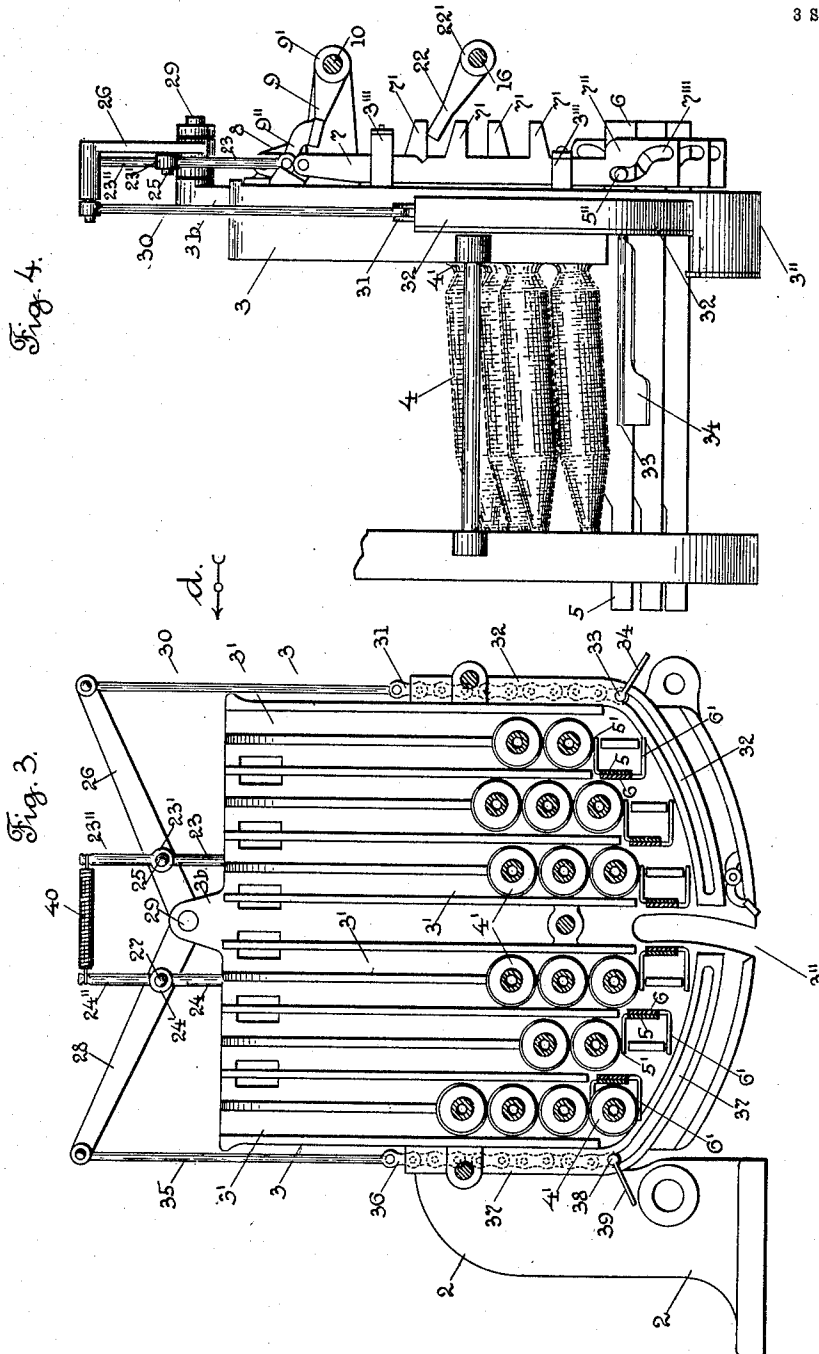
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Witnesses
M. Bredt.
W. H. Haver.

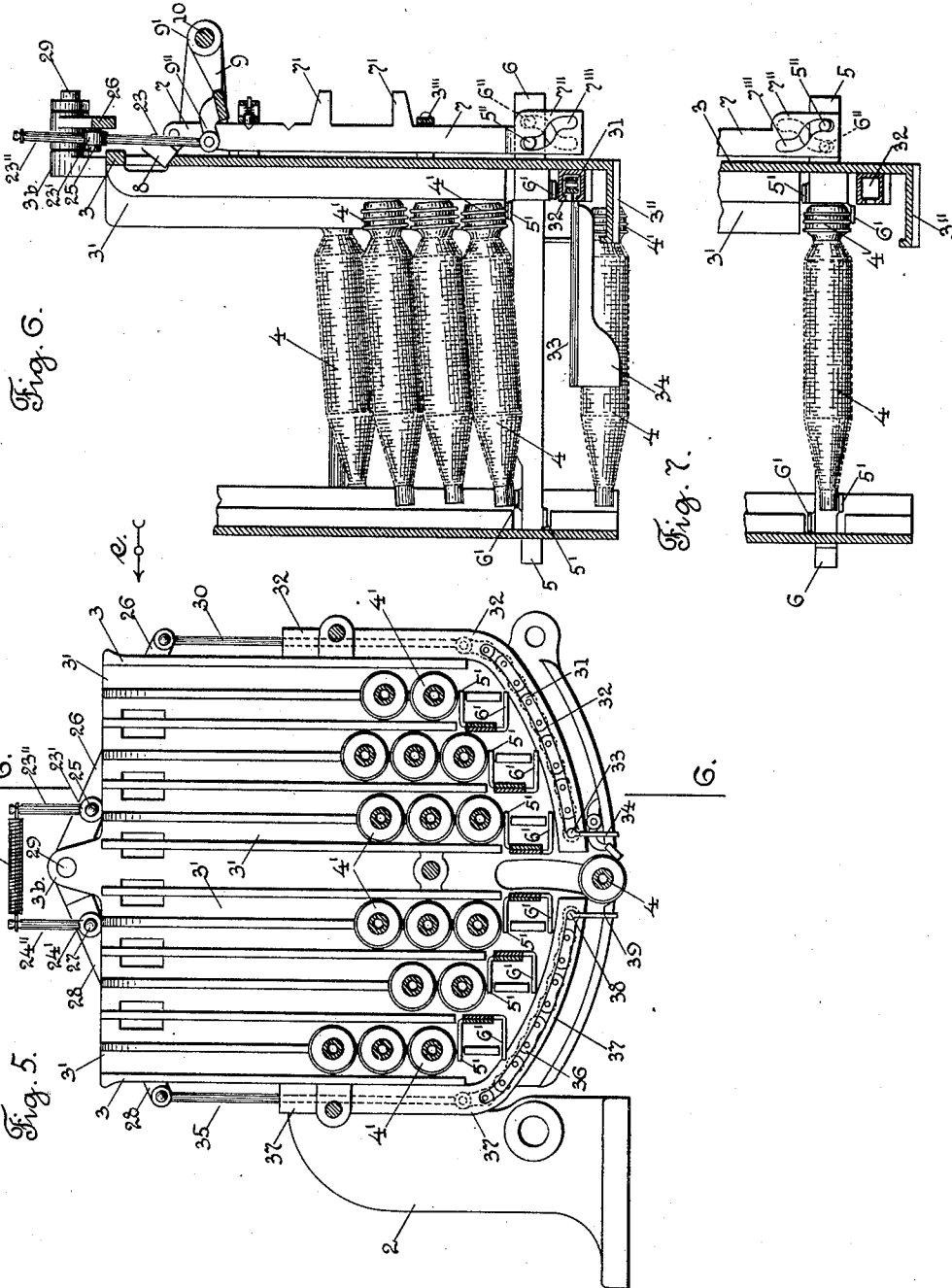
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

EPPA H. RYON, OF WALTHAM, MASSACHUSETTS, ASSIGNOR TO CROMPTON & KNOWLES LOOM WORKS, A CORPORATION OF MASSACHUSETTS.

WEFT-REPLENISHING LOOM.

1,005,322.

Specification of Letters Patent.

Patented Oct. 10, 1911.

Application filed December 1, 1910. Serial No. 595,016.

To all whom it may concern:

Be it known that I, EPPA H. RYON, a citizen of the United States, residing at Waltham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Weft-Replenishing Looms, of which the following is a specification.

My invention relates to weft replenishing looms, and more particularly to that class of weft replenishing looms shown and described in U. S. Letters Patent, No. 933,492, which looms have a stationary magazine with a plurality of guide-ways or compartments for bobbins or filling carriers, and in which, when the lowest bobbin in a compartment is released, said bobbin drops down by gravity to the discharging end of the magazine, to be engaged by the transfer arm to be transferred into the active shuttle.

In looms of the class referred to, which have a stationary magazine with four or more guide-ways or compartments for bobbins or filling carriers, and in which the distance for some of the bobbins to drop to the discharging end of the magazine is considerable, it may happen that a bobbin is misplaced and will not fall into its proper position at the discharging end of the magazine.

The object of my invention is to provide mechanism for positively positioning a bobbin after it has been released from its compartment, and preparatory to its being transferred into the active shuttle.

My mechanism, as shown and described herein, for positioning a bobbin, consists of two blades, one at each side of the magazine, and means for operating said blades on a release of a bobbin, to cause said blades to move downwardly and engage the bobbin, to engage and position the same preparatory to its being transferred into the active shuttle.

My invention consists in certain novel features of construction of my improvements as will be hereinafter fully described.

In the drawings is shown a detached portion of a stationary magazine of a weft replenishing loom of the class above referred to, and also of the class shown and described in my pending application, Serial No.

581,387, sufficient to enable those skilled in the art to understand the construction and operation of the same.

Referring to the drawings:—Figure 1 is an inner end view of a magazine, and a bobbin holding and releasing mechanism, with my improvements combined therewith, looking in the direction of arrow *a*, Fig. 2. Fig. 2 is a front view of a detached portion of the stationary magazine, shown in Fig. 1, looking in the direction of arrow *b*, same figure. Fig. 3 is a section, on line 3, 3, Fig. 2, looking in the direction of arrow *c*, same figure; the lowest bobbin at the left is released from its compartment and dropped into its support. Fig. 4 is a front view of the magazine, looking in the direction of arrow *d*, Fig. 3, with a vertically moving bar raised to release a bobbin from its compartment. Fig. 5 corresponds to Fig. 3, but shows the bobbin at the left dropped to the discharging end, and the positioning device in its opposite position. Fig. 6 is a section, on line 6, 6, Fig. 5, looking in the direction of arrow *e*, same figure, and, Fig. 7 shows a bobbin released from its compartment and held by its support.

In the accompanying drawings, 1 is the breast beam, 2 a stationary stand mounted thereon, which has secured thereto the inner end 3 of the magazine, which in this instance has six vertically extending guide-ways or compartments 3' for the heads 4' of the bobbins 4. The bobbins 4 are arranged in six sets or series, one set for each compartment, and drop down by gravity to the lower discharging end 3'' of the magazine. Each guide-way or compartment 3' is provided at its lower end with mechanisms for supporting the set of bobbins therein, and also for releasing each bobbin in each set, preparatory to its passage to the discharging end 3'' of the magazine, to be transferred into the active shuttle. In this instance the holding and releasing mechanism consists of two sliding blades or bars 5 and 6, which are suitably guided at each end, and provided with projections 5' and 6' on one side thereof, for the head and the tip of the bobbins to rest upon, and to be released when a sliding motion is communicated to the blades 5 and 6, and the projections 5' and 6' are to be moved out of the path of the bob-

bins, or away from the head and tip of the bobbin.

Arranged on the inner side of the inner end plate 3 of the magazine are six vertically moving bars 7, one for each compartment 3'. The bars 7 are loosely supported in guides or bearings 3'', and have an up and down movement. The bars are provided at their upper ends with weighted hooks 8, which are adapted, on their downward movement, to engage and rock a lever 9, which has its hub 9' secured on a rock shaft 10. The outer end of the shaft 10 has secured thereon the hub 11' of an arm 11. A stud 12 of the arm 11 enters a hole in a block 13, and is adapted to loosely extend in an elongated opening in a lever 14, which has its hub 14' loosely mounted on a stud 15. A helically coiled expansion spring 16 acts to hold and lock the levers 14 and 11 in their upper and lower position. A second arm 14'' of the lever 14 is adapted, through connector 15, and intermediate connections to the dagger on the transfer arm, not shown, to raise said dagger into the path of the bunter on the lay, to transfer the bobbin being released into the active shuttle, in the usual way.

The bearings 3^a on the magazine have loosely mounted therein a longitudinally moving rod 16. A sliding motion is communicated to the rod 16, through intermediate connections, to the drop shuttle boxes, or a pattern surface on the opposite side of the loom, not shown.

The raising and lowering of the shuttle boxes, or the movement of the pattern chain, will impart a reciprocating movement to the rod 16, to cause it to move longitudinally into six different positions, according to the positions of the drop shuttle boxes, or the pattern indicators.

Extending upwardly from the weft replenishing operating mechanism on the loom, not shown, is a rod 17, which has its upper end pivotally connected to a pin 18 on a lever 19, which has its hub loosely mounted on the rod 16, and is prevented from having a longitudinal movement thereon by the two lugs or bearings 3^a. The lever 19 is provided with lugs 19', to loosely receive the spring actuated bolt 20, which, through the action of the helically coiled expansion spring 21 at the horizontal position of the lever 19, shown in Fig. 2, bears against the stand 2, and prevents said lever from moving downwardly, unless through the action of the weft replenishing mechanism, not shown.

The longitudinally moving rod 16 has secured thereon, to be moved therewith, the hubs 22' of the operating lever 22. A side extension 22'', which extends loosely into a notch or recess in the lever 19, will, through the up and down movement of said lever, communicate a rocking motion to the lever

22 and through fingers on said lever, which engage extensions 7' on the vertically moving bar 7, move up or down the selected bar to release a bobbin. The lower ends of the bar 7 are forked or yoke-shaped at 7'', as shown, and provided with a curved slot 7''', see Fig. 2, into which extends the studs 5'' and 6'', respectively, of each of the sliding blades 5 and 6.

The up and down movement of the vertically moving bar 7 causes a sliding motion of the blades 5 and 6, in a direction away from each other, to release and drop a bobbin from its compartment.

All of the above mentioned parts are of the construction shown and described in U. S. Letters Patent, No. 933,492, and in my pending application, Serial No. 581,387, above referred to.

I will now describe my improvements, which as above stated relate to the positioning device or mechanism for a bobbin being released from its compartment in the magazine, preparatory to being transferred into the active shuttle. The lever 9 is provided in this instance with two lugs or ears 9'', which are pivotally connected to the lower ends of the two upwardly extending rods 23 and 24. The upper boss 23' on the rod 23, is pivotally connected to a stud 25 on an arm or lever 26, and the boss 24' on the connector rod 24, is pivotally connected to a stud 27, on an arm or lever 28. The arms 26 and 28 have their hubs loosely pivoted on a stud 29 on a projection 3^b on the magazine. The arm 26 has pivotally connected to its end the upper end of a downwardly extending wire or rod 30. The lower end of said rod 30 has pivotally connected thereto the upper link of a flexible chain 31. The chain 31 extends downwardly and into a guide 32, which is hollow throughout its central portion. The chain guide 32 is suitably secured to the magazine, and leads inwardly toward the discharging end 3'' of the magazine. The lowest link on the chain 31 has outwardly extending therefrom a rod or wire 33, which has thereon a blade 34, as shown in Figs. 4 and 6.

The lever or arm 28 has pivotally connected thereto the upper end of a downwardly extending rod 35; the lower end of the rod 35 has pivotally connected thereto the upper link of a flexible chain 36, which in this instance extends downwardly and into a chain guide 37, which is hollow throughout its central portion and extends at its lower part toward the discharging end 3'' of the magazine. The lower link of the chain 36 has a rod or wire 38 extending out therefrom which is provided with a blade 39, similar to the blade 34, of the other chain 31. A helically coiled contraction spring 40 is attached to the extension 23'' and 24'' on the connections 23' and 24', and act to yieldingly hold

the levers 26 and 28 in their raised, and lowered position.

From the above description in connection with the drawings, the operation of my improvements will be readily understood by those skilled in the art, and briefly is as follows:—When, through the operation of the weft replenishing mechanism, a vertically moving bar 7 is moved upwardly, as shown in Fig. 7, a bobbin 4 is released from its compartment to drop onto the lower part of the bobbin supports 5 and 6, as shown at the left in Fig. 3, and on the downward movement of the bar 7, the weighted hook 8 engages the lever 9, and moves said lever from the position shown in Fig. 4 to the position shown in Fig. 6. The bobbin 4 drops from its support to the lower part of the magazine, and as the arms 26 and 28 are moved downwardly, through connections to the lever 9, the chains 31 and 36, and the blades 34 and 39 are operated, to follow the passage of the released bobbin, to engage and positively move it to the discharging end 3" of the magazine, and properly position it, as shown in Fig. 5.

It will be understood that the details of construction of my improvements may be varied if desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a magazine of the class described, a plurality of compartments for stacks of superposed bobbins, supports for the lowest bobbin in each compartment, means to operate said supports to release a bobbin from a compartment, guides or projections on which said bobbin rests when released from the magazine, movable blades or pushers, and means to automatically operate said blades

or pushers to place a released bobbin in position to be transferred into the shuttle.

2. In a magazine of the class described, having a plurality of stacks of bobbins, means to support said bobbins, guides or projections arranged below said supports, means to operate said supports to release the lowest bobbin in any compartment, and means to positively push said bobbin to a position to be transferred into the shuttle.

3. In a magazine of the class described, a plurality of compartments for superposed bobbins, supports for said bobbins, slides operatively connected to said supports, a pair of pushers to force a bobbin, when released by said supports, to a position to be transferred into the shuttle, and connections between said pushers and said slides.

4. In a magazine of the class described, a plurality of compartments for superposed bobbins, supports for said bobbins, slides operatively connected to said supports, a pair of pushers to force a bobbin, when released by said supports, to a position to be transferred into the shuttle, and flexible connections between said pushers and said slides.

5. In a magazine of the class described, compartments for a plurality of superposed bobbins, supports for the bobbins in each compartment, means to operate said supports to allow a bobbin to drop from the compartment to a projection or guide, and said projection or guide, and devices automatically operated in opposite directions to positively push a bobbin to a position to be transferred into the shuttle.

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Witnesses:

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